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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/072,906	02/12/2002	Reijo Lylykangas	3502-1008	3661

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YOUNG & THOMPSON
745 SOUTH 23RD STREET
2ND FLOOR
ARLINGTON, VA 22202

EXAMINER

TRAN, HIEN THI

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 06/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/072,906

Applicant(s)

LYLYKANGAS ET AL

Examiner

Hien Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2005.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-19 and 24 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 14-19 and 24 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 14 May 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1/9/04 & 5/2/02.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of group III, claims 14-19, 24, in the reply filed on 4/7/05 is acknowledged.
2. Claims 1-13, 20-23 and 25-26 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 4/7/05.
3. The cancellation of non-elected claims, 1-13, 20-23, 25-26, in the reply filed 4/7/05 is acknowledged.

Priority

4. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

5. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: "21" (Fig. 1). Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not

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accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

6. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "42" has been used to designate both the sheets (page 9, lines 13 and 17) and the reactor cell (page 9, line 28). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

7. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "47" (page 9, line 15) and "41" (page 9, line 12) have both been used to designate the housing. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

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8. The drawings have not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the drawings to comply with CFR 1.84(p)(5), e.g. they should include the reference sign(s) mentioned in the specification and vice versa.

Specification

9. The disclosure is objected to because of the following informalities:

On page 1, line 8 it is unclear as to what is intended by "immobilized"; in line 20 it is unclear as to what is intended by "the cells" and whether the cells are the same as to the cells set forth in line 19.

On page 2, lines 7-8 reference to the independent claims and other claims is improper and should be deleted; in line 32 --intended-- is misspelled.

On page 3, line 3 it is unclear as to what is intended by "openings".

On page 4, lines 2-3 it is unclear as to what applicants are attempting to recite.

On page 6, lines 26-33 it is unclear as to what applicants are attempting to recite and what is intended by "hole assay".

On page 8, line 3 "DETAILED ... INVENTION" should be moved to before line 12 and --BRIEF DESCRIPTION OF THE DRAWINGS-- should be inserted in line 3.

On page 8, lines 20-21 it is unclear as to where it is shown that the corrugated sheets 3 are connected to the housing by the weld joint 10.

On page 9, line 29 it is unclear as to what is intended by "profiles" and it is unclear as to how the profiles are related to the corrugations set forth on page 8, lines 16, 27. If they are the same, then the same terminology should be used to avoid confusion.

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On page 10, line 16 apparently "5,5" should be changed to --5.5--; in line 18 it is unclear as to what WMC is implied.

Appropriate correction is required.

10. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

11. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

12. Claims 14-19, 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are difficult to understand what applicants are attempting to recite.

Furthermore, in claim 14, lines 3-5 the language of the claim is directed to method of making which is vague and indefinite as it is unclear as to what applicants are attempting to recite, what is intended by "cell", how can a cell comprise sheets, apparently "cell" in line 1 should be deleted; also the use of the phrases of "for instance", "and", "or" "and/or", "optionally", "such as" through out the claim causes confusing as it is unclear as to whether the limitations following the phrases are part of the claimed invention (see the remaining claims likewise); in line 3 it is unclear as to what is implied by "can have been formed for instance"; in

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line 4 it is unclear as to how the sheet strip is related to the corrugated sheets set forth in line 2; in line 9 --said-- should be inserted after “and”; in line 11 “them” and in line 13 “they” are vague and indefinite as it is unclear as to what the terms are implied; in lines 14-16 the language is directed to method of making which is vague and indefinite as it is unclear as to what applicants are attempting to recite and also it is unclear as to what “a part” is implied and what is intended by “to the housing and to a part of the housing”; in line 14 it is unclear as to what is intended by “to each other/to sheets ...”; in line 15 the use of “and/or” is vague and indefinite (see the remaining claims likewise). See claim 24 likewise.

In claim 15, line 2 “other sheets” has not clear antecedent basis (note the phrase of optionally set forth in claim 14).

In claim 16, line 2 it is unclear as to what corrugated sheet is implied; in line 3 it is unclear as to what is intended by “profiled sheet”.

In claim 17, lines 2-3 it is unclear as to whether the overlapping corrugated sheets are the same as to the sheets set forth in claim 14, line 2.

In claim 18, it is unclear as to what applicants are attempting to recite, note that the preamble recites only one reactor cell; also it is unclear as to how the sheets are related to the sheets set forth in claim 14.

In claim 19, line 4 it is unclear as to how the housing is related to the housing set forth in claim 14, line 9.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

15. The art area applicable to the instant invention is that of catalytic converter.

One of ordinary skill in this art is considered to have at least a B.S. degree, with additional education in the field and at least 5 years practical experience working in the art; is aware of the state of the art as shown by the references of record, to include those cited by applicants and the examiner (*ESSO Research & Engineering V Kahn & Co*, 183 USPQ 582 1974) and who is presumed to know something about the art apart from what references alone teach (*In re Bode*, 193 USPQ 12, (16) CCPA 1977); and who is motivated by economics to depart from the prior art to reduce costs consistent with the desired product characteristics. *In re Clinton* 188 USPQ 365, 367 (CCPA 1976) and *In re Thompson* 192 USPQ 275, 277 (CCPA 1976).

16. Claims 14-16, 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kono et al (5,403,558) in view of Cairns et al (GB 1,546,097).

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With respect to claims 14, 16, 24, Kono et al discloses a catalytic converter and a method of making the catalytic converter comprising: a housing 4 containing overlapping corrugated and flat sheets 2, 3; the sheets defining channels and joined together by resistance welding (col. 7, lines 13-15).

The apparatus and method of Kono et al are substantially the same as that of the instant claims, but are silent as to whether the sheets may be preoxidized.

However, Cairns et al discloses provision of preoxidizing the sheets for forming an alumina layer on the surfaces.

It would have been obvious to one having ordinary skill in the art to preoxidize the sheets as taught by Cairns et al in the method and apparatus of Kono et al so as to form a high surface layer on the surface of the sheets as such is conventional in the art and no cause for patentability here. The order of the steps is not considered to confer patentability to the claim. Accordingly, one having ordinary skill in the art would have routinely selected an appropriate order of steps in forming the apparatus to obtain the desired benefits attendant thereof.

With respect to claim 15, the specific number of the joints content is not considered to confer patentability to the claim. Accordingly, one having ordinary skill in the art would have routinely optimized the number of joints in the system to obtain an improved holding the sheets thereof (*In re Boesch*, 617 F.2d. 272, 205 USPQ 215 (CCPA 1980)), and since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (*In re Aller*, 105 USPQ 233).

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17. Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kono et al (5,403,558) in view of Cairns et al (GB 1,546,097) as applied to claims 14-16 and 24 above and further in view of Dekumbis et al (5,651,946).

The modified apparatus Kono et al is substantially the same as that of the instant claim, but fails to disclose the specific angle of the corrugation and whether another reactor cell may be provided.

However, Dekumbis et al discloses provision of reactor cells having corrugated sheets with a corrugation angle of 10-70 degrees in which the sheets of the cells are oriented in different directions relative to each other.

It would have been obvious to one having ordinary skill in the art to provide cells having corrugated sheets with a corrugation angle of 10-70 degrees in which the sheets of the cells are oriented in different directions relative to each other as taught by Dekumbis et al in the modified apparatus of Kono et al so as to enhance the mixing of the gas flow across the cross section of the substrate.

18. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kono et al (5,403,558) in view of Cairns et al (GB 1,546,097) as applied to claims 14-16 and 24 above and further in view of Maus et al (5,103,641).

The modified apparatus Kono et al is substantially the same as that of the instant claim, but fails to disclose the conical section of the cell and the conical section of the housing.

However, Maus et al discloses provision of reactor cell having conical section being inserted into a housing which has a conical section substantially conforming to the conical section of the reactor cell.

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It would have been obvious to one having ordinary skill in the art to provide a conical section for the reactor cell and housing as taught by Maus et al in the modified apparatus of Kono et al so as to guide the exhaust gas through the substrate and since such a modification would have involved a mere change in the shape of a component. A change in shape is generally recognized as being within the level of ordinary skill in the art, absence showing any unexpected results. *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

Conclusion

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hien Tran whose telephone number is (571) 272-1454. The examiner can normally be reached on Tuesday-Friday from 7:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hien Tran

Hien Tran
Primary Examiner
Art Unit 1764

HT
June 27, 2005